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EXAMINER	
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ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/795,962	AVERTY ET AL.	
	Examiner	Art Unit	
	BRIAN L. ALBERTALLI	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *14 and 35* is/are allowed.

6)☒ Claim(s) *1-4,6,7,9-13,15-20,22-25,27,28 and 30-34* is/are rejected.

7)☒ Claim(s) *5,8,21,26 and 29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. In the previous Office Action, claims 1-4, 6, 7, 9, 11, and 16-18 were rejected under 35 U.S.C. 102(a) as being anticipated by Chan et al. Applicant has submitted an affidavit under 37 CFR 1.131 "swearing behind" the Chan et al. reference. While this is sufficient to overcome a rejection under 35 U.S.C. 102(a), upon further inspection, Chan et al. is available as prior art under 35 U.S.C. 102(b). A printed publication is available as prior art under 35 U.S.C. 102(b) if the publication was published more than one year prior to the date of the application for patent *in the United States*. Chan et al. was published in January 2003. The instant application was first filed in the U.S. on March 8, 2004. Thus, Chan et al. was published more than one year prior to the date of the application for patent in the U.S.

Because Chan et al. is available as prior art under 35 U.S.C. 102(b), the affidavit filed under 37 CFR 1.131 is not sufficient to overcome a rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 6, 7, 9, 11, and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Chan et al. (*A Low-Complexity, High Quality, 64-Kbps Audio Codec With Efficient Bit Allocation*).

In regard to claims 1 and 16-18, Chan et al. disclose a mask generation process, audio coder (Fig. 3), computer readable storage medium (storage media, section 1), and mask generator for use in encoding audio data (Fig. 3), including:

means for generating linear masking components from said audio data (tonal and non-tonal components are selected by approximating a logarithm by a Taylor expansion, page 37, equations 17 and 18);

means for generating logarithmic masking components from said linear masking components (the masking components are converted by into the logarithmic domain by performing an inverse of the function used above before the global masking threshold is generated, page 37 and 39, equations 19 and 20); and

means for generating a global masking threshold from the logarithmic masking components (the global masking threshold is generated by equation 5, page 27).

In regard to claim 2, Chan et al. disclose said step of generating linear masking components includes:

generating linear components in a frequency domain from said audio data (MDCT coefficients, page 37);

selecting a first subset of said linear components as linear tonal components (identification of tonal components, page 37); and

selecting a second subset of said linear components as linear non-tonal components (identification of non-tonal components, page 37).

In regard to claim 3, Chan et al. disclose generating sound pressure levels from said linear components using a second-order Taylor expansion of a logarithmic function (a two-term Taylor series, page 37).

In regard to claim 4, Chan et al. disclose generating a normalized value corresponding to an argument of said logarithmic function, and using said normalized value in said Taylor expansion (in equations 17 and 18, *alpha* represents the normalized value, page 37).

In regard to claim 6, Chan et al. disclose decimating said linear tonal components and said linear non-tonal components (components are dropped to obtain N/2 thresholds, page 26); and

generating masking thresholds from the decimated linear tonal components and the decimated linear non-tonal components (the selected components are used to generate masking thresholds, page 26).

In regard to claim 7, Chan et al. disclose generating a global masking threshold includes determining maximum components of said masking thresholds and

predetermined threshold values (the global masking threshold function (5) determines maximal components, page 27).

In regard to claim 9, Chan et al. disclose logarithmic masking components are generated using a second-order Taylor expansion of a logarithmic function (page 37).

In regard to claim 11, Chan et al. disclose said linear masking components include linear energy components (approximations of dB, page 37), and said logarithmic masking components include logarithmic power components (power levels, page 26).

In regard to claim 22, Chan et al. disclose an audio encoder (Fig. 3), comprising:

a bit stream generator (see Fig. 3, output buffer assembles a 64 Kbps bitstream, section 7); and

a mask generator configured to:

generate linear masking components from audio data (tonal and non-tonal components are selected by approximating a logarithm by a Taylor expansion, page 37, equations 17 and 18);

generate logarithmic masking components from the linear masking components (the masking components are converted by into the logarithmic domain by performing an inverse of the function used above before the global masking threshold is generated, page 37 and 39, equations 19 and 20); and

generate a global masking threshold from the logarithmic masking components (the global masking threshold is generated by equation 5, page 27).

In regard to claim 23, Chan et al. disclose the mask generator is configured to generate the linear masking components by:

generating linear components in a frequency domain from said audio data (MDCT coefficients, page 37);

selecting a first subset of said linear components as linear tonal components (identification of tonal components, page 37); and

selecting a second subset of said linear components as linear non-tonal components (identification of non-tonal components, page 37).

In regard to claim 24, Chan et al. disclose the mask generator is configured to generate sound pressure levels from said linear components using a second-order Taylor expansion of a logarithmic function (a two-term Taylor series, page 37).

In regard to claim 25, Chan et al. disclose the mask generator is configured to generate a normalized value corresponding to an argument of said logarithmic function, and using said normalized value in said Taylor expansion (in equations 17 and 18, *alpha* represents the normalized value, page 37).

In regard to claim 27, Chan et al. disclose the mask generator is configured to generate the global masking threshold by:

decimating said linear tonal components and said linear non-tonal components (components are dropped to obtain N/2 thresholds, page 26); and

generating masking thresholds from the decimated linear tonal components and the decimated linear non-tonal components (the selected components are used to generate masking thresholds, page 26).

In regard to claim 28, Chan et al. disclose the mask generator is configured to generate a global masking threshold includes determining maximum components of said masking thresholds and predetermined threshold values (the global masking threshold function (5) determines maximal components, page 27).

In regard to claim 30, Chan et al. disclose the mask generator is configured to generate the logarithmic masking components using a second-order Taylor expansion of a logarithmic function (page 37).

In regard to claim 32, Chan et al. disclose the linear masking components include linear energy components (approximations of dB, page 37), and said logarithmic masking components include logarithmic power components (power levels, page 26).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 10, 13, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al., in view of Absar et al. (U.S. Patent 7,003,449).

In regard to claim 10, Chan et al. disclose generating masking thresholds from said logarithmic components using a masking function of the form set forth in claim 10, except the range of *dz* is from 0 to 1 (as opposed to 0 to 8, as claimed, see page 26, equation 4).

Absar et al. disclose a masking function wherein only upward masking is used (column 6, line 51 to column 7, line 11). This is analogous to the range of *dz* being positive.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Chan et al. to use only the masking function set forth in claim 10 for *dz* ranging from 0 to 8, because this simplifies the masking calculations, as taught by Absar et al. (column 6, lines 51-52).

In regard to claims 13 and 15, Chan et al. disclose a mask generation process and mask generator for encoding audio data, including:

generating logarithmic masking components (the masking components are converted by into the logarithmic domain by performing an inverse of the function used above before the global masking threshold is generated, page 37 and 39, equations 19 and 20).

Furthermore, Chan et al. disclose generating masking thresholds from said logarithmic components using a masking function of the form set forth in claim 10, except the range of *dz* is from 0 to 1 (as opposed to 0 to 8, as claimed, see page 26, equation 4).

Absar et al. disclose a masking function wherein only upward masking is used (column 6, line 51 to column 7, line 11). This is analogous to the range of *dz* being positive.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Chan et al. to use only the masking function set forth in claim 10 for *dz* ranging from 0 to 8, because this simplifies the masking calculations, as taught by Absar et al. (column 6, lines 51-52).

In regard to claim 31, Chan et al. disclose the mask generator is configured to generate masking thresholds from said logarithmic components using a masking function of the form set forth in claim 31, except the range of *dz* is from 0 to 1 (as opposed to 0 to 8, as claimed, see page 26, equation 4).

Absar et al. disclose a masking function wherein only upward masking is used (column 6, line 51 to column 7, line 11). This is analogous to the range of *dz* being positive.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Chan et al. to use only the masking function set forth in claim 10 for *dz* ranging from 0 to 8, because this simplifies the masking calculations, as taught by Absar et al. (column 6, lines 51-52).

In regard to claim 34, Chan et al. disclose and audio encoder, comprising:

a bit stream generator (see Fig. 3, output buffer assembles a 64 Kbps bitstream, section 7);

a filter bank (TDAC Filter bank, section 3, 1st paragraph);

a quantizer (Fig. 3, nonuniform quantizer, section 4); and

a mask generator configured to generate logarithmic masking components (the masking components are converted by into the logarithmic domain by performing an inverse of the function used above before the global masking threshold is generated, page 37 and 39, equations 19 and 20).

Furthermore, Chan et al. disclose generating masking thresholds from said logarithmic components using a masking function of the form set forth in claim 10, except the range of *dz* is from 0 to 1 (as opposed to 0 to 8, as claimed, see page 26, equation 4).

Absar et al. disclose a masking function wherein only upward masking is used (column 6, line 51 to column 7, line 11). This is analogous to the range of *dz* being positive.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Chan et al. to use only the masking function set forth in claim 10 for *dz* ranging from 0 to 8, because this simplifies the masking calculations, as taught by Absar et al. (column 6, lines 51-52).

6. Claims 12 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al., in view of Applicant's Admitted Prior Art (AAPA).

Chan et al. disclose the mask generation process/encoder is related to MPEG-1 coding (abstract), but do not specifically disclose the process is an MPEG-1 layer 2 audio encoding process.

AAPA discloses an MPEG-1 layer 2 audio encoding process was known at the time of invention (page 1 of Applicant's specification).

One of ordinary skill in the art at the time of invention would have recognized that the processing reduction techniques disclosed by Chan et al. could have been applied to the MPEG-1 layer 2 audio encoding process with the predictable result of reducing the processing needed for audio encoding. Thus, it would have been obvious to one of ordinary skill in the art at the time of invention to apply the techniques of Chan et al. to an MPEG-1 layer 2 audio encoding process.

7. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA, in view of Chan et al.

AAPA discloses a psychoacoustic masking process and an MPEG-1-L2 audio encoder, comprising:

means for generating energy values from Fourier transformed audio data (Fig. 2, step 208);

means for generating power values from said energy values (step 210);

means for generating masking thresholds on the basis of said masking components and said power values (step 222); and

means for generating signal to mask ratios for a quantizer on the basis of said sound pressure level values and said masking thresholds (step 226).

AAPA does not disclose a linear to logarithmic transform which would allow:

means for determining sound pressure level values from said energy values;

selecting tonal and non-tonal masking components on the basis of said energy values;

Chan et al. disclose a method of audio coding, including:

means for determining sound pressure level values from energy values (SPL, page 26); and

selecting tonal and non-tonal masking components on the basis of said energy values (page 37);

It would have been obvious to one of ordinary skill in the art at the time of invention to modify AAPA to determine SPL values from energy values and select tonal

and non-tonal masking components on the basis of said energy values in the linear domain, because this would reduce the processing needed for audio coding.

Allowable Subject Matter

8. Claims 5, 8, 21, 26, and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

While Chan et al. disclose a process of conversion between the linear and logarithmic domains to reduce the computations needed for encoding audio, Chan et al. and the additional prior art of record do not disclose or suggest the specific functions recited in claims 5, 8, 21, 26, and 29.

9. Claims 14 and 35 are allowed.

The following is an examiner's statement of reasons for allowance:

Claims 14 and 35 include the limitations of claim 8 and written in independent form. Claims 14 and 35 are allowed for the same reasons given above for claim 8.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRIAN L. ALBERTALLI whose telephone number is

(571)272-7616. The examiner can normally be reached on Monday-Thursday, 8 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David R Hudspeth/
Supervisory Patent Examiner, Art Unit 2626

BLA 12/1/08